

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-26. cancelled

- | 25-27. A method for diagnosing degradation of an emission control system coupled downstream of an internal combustion engine, the system including a NOx catalyst having a first NOx sensor coupled upstream of the catalyst and a second NOx sensor coupled downstream of the catalyst, the method comprising:
| providing an indication of an operating condition;
| in response to said indication diagnosing the first NOx sensor degradation if a difference between a first NOx sensor signal and an estimated amount of NOx in an exhaust gas mixture upstream of the catalyst is greater than a first predetermined value; and
| diagnosing the second NOx sensor degradation if a difference between a first NOx sensor signal and an estimated amount of NOx in an exhaust gas mixture upstream of the catalyst is less than said first predetermined value and a difference between said first NOx sensor signal and a second NOx sensor signal is greater than a second predetermined value.
- | 26-28. The method as set forth in Claim 27 wherein the NOx catalyst is an SCR catalyst.
- | 27-29. The method as set forth in Claim 27 wherein the NOx catalyst is an ALNC catalyst.
- | 28-30. The method as set forth in Claim 27 wherein said NOx catalyst is an LNT.
- | 29-31. The method as set forth in Claim 30 wherein said operating condition is a temperature of said LNT wherein there is substantially no NOx conversion or adsorption in said LNT.
- | 29-32. The method as set forth in Claim 27 wherein said operating condition is a catalyst temperature below 150°C.

| 31-33. The method as set forth in Claim 27 wherein said operating condition is a catalyst temperature greater than 450°C.

34-42. Cancelled.

| 34-43. (new) A method for diagnosing degradation of a lean exhaust gas aftertreatment system, the system including a NOx catalyst having a first NOx sensor coupled upstream of the catalyst and a second NOx sensor coupled downstream of the catalyst, the method comprising:

comparing a first NOx sensor measurement and a second NOx sensor measurement when the catalyst is within a temperature range wherein a NOx conversion efficiency of the catalyst is substantially zero; and
providing an indication of system degradation when a difference between said first NOx sensor measurement and said second sensor measurement is greater than a predetermined value.

| 34-44. (new) A method for diagnosing degradation of a lean exhaust gas aftertreatment system, the system including a Lean NOx Trap (LNT) having a first NOx sensor coupled upstream of the LNT and a second NOx sensor coupled downstream of the LNT, the method comprising:

comparing a first NOx sensor measurement and a second NOx sensor measurement when the catalyst is within a temperature range wherein there is substantially no NOx conversion or adsorption in the LNT; and

providing an indication of system degradation when a difference between said first NOx sensor measurement and said second sensor measurement is greater than a second predetermined value.